

U.S. Department of Commerce, Patent and Trademark Office				Atty Docket No.	Serial No.			
				M-8915-1C US US	09/839,991			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Applicants				
(Use several sheets if necessary)				Mohammad H. S. Amin et al.				
				Filing Date	Group			
				April 20, 2001	Unknown			
U.S. Patent Documents								
*Examiner Initial	TRADEMARK OFFICE 1605	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA	5,917,322	Jun. 29, 1999	Gershenfeld et al.	324	307		
Foreign Patent Documents								
		Document	Date	Country	Class	Subclass	Translation	
	AB						Yes No	
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)								
	AC	Blatter, G. et al., "Design aspects of superconducting-phase quantum bits", <i>The American Physical Society</i> (2001) Vol. 63, Pages 174511-1 to 174511-9.						
	AD	Briegel, H.-J. et al., "Quantum repeaters for communication" (1998), Pages 1-8.						
	AE	Bruder, C. et al., "Tunnel junctions of unconventional superconductors", <i>The American Physical Society</i> (1995) Vol. 51, Pages 904-907.						
	AF	Chrestin, A. et al., "Evidence for a proximity-induced energy gap in Nb/InAs/Nb junctions", <i>The American Physical Society</i> (1997) Vol. 55, Pages 8457-8465.						
	AG	Dana, A. et al., "Electrostatic force spectroscopy of a single InAs quantum dot" (2001), Pages 1-5.						
	AH	Feynman, R., "Simulating Physics with Computers", <i>International Journal of Theoretical Physics</i> (1982) Vol. 21, Pages 467-488.						
	AI	Grover, L., "A fast quantum mechanical algorithm for database search", Pages 1-8.						
	AJ	Havel, T. et al., "Principles and demonstrations of quantum information processing by NMR spectroscopy" (1999), Pages 1-42.						
	AK	Jacobs, A. et al., "Proximity Effect, Andreev Reflections, and Charge Transport in Mesoscopic Superconducting-Semiconducting Heterostructures" (1998) eight pages..						
	AL	Jones, J. et al., "Implementation of a quantum search algorithm on a quantum computer", <i>Nature</i> (1998) Vol. 393, Pages 344-346.						
Examiner <i>[Signature]</i>		Date Considered		<i>11/01</i>				
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.</p>								

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Foreign Patent Documents				Translation			
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OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
AC	Joyez, P. et al., "Observation of Parity-Induced Suppression of Josephson Tunneling in the Superconducting Single Electron Transistor", <i>The American Physical Society</i> (1994) Vol. 72, Pages 2458-2461.						
AD	Kitaev, A., "Quantum measurements and the Abelian Stabilizer Problem" (1995) Pages 1-22.						
AE	Knill, E. et al., "Resilient Quantum Computation", <i>Science</i> (1998) Vol. 279, Pages 342-345.						
AF	Korotkov, A. et al., "Charge sensitivity of radio frequency single-electron transistor", <i>American Institute of Physics</i> (1999) Vol. 74, Pages 4052-4054.						
AG	Lachenmann, S. et al., "Charge transport in superconductor/semiconductor/normal-conductor step junctions", <i>The American Physical Society</i> (1997) Vol. 56, Pages 108-115.						
AH	Mooij, J. et al., "Josephson Persistent-Current Qubit", <i>Science</i> (1999) Vol. 285, Pages 1036-1039.						
AI	Nakamura, Y. et al., "Coherent control of macroscopic quantum states in a single-Cooper-pair box", <i>Nature</i> (1999), Vol. 398, Pages 786-788.						
AJ	Omelyanchouk, A. et al., "Ballistic Four-Terminal Josephson Junction: Bistable States and Magnetic Flux Transfer" (1999) Pages 1-11 with six pages of drawings.						
AK	Ouboter, R. et al., "Macroscopic quantum interference effects in superconducting multiterminal microstructures", <i>Academic Press</i> (1999) Vol. 25, Pages 1005-1017.						
AL	Ryazanov, V. et al., "Coupling of two superconductors through a ferromagnet: evidence for a η junction" (2000) Pages 1-6.						
Examiner <i>[Signature]</i>	Date Considered		11/04				
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT OIPR MAY 21 2001 PATENT & TRADEMARK OFFICE USPTO SC14		Applicants Mohammad H. S. Amin et al.					
		Filing Date	Group				
		April 20, 2001	Unknown				
U.S. Patent Documents							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
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Foreign Patent Documents							
				Translation			
	Document	Date	Country	Class	Subclass	Yes	No
	AB						
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
<i>JP</i>	AC	Schoelkopf, R. et al., "The Radio-Frequency Single-Electron Transistor (RF-SET): A Fast and Ultrasensitive Electrometer", <i>Science</i> (1998), Vol. 280, Pages 1238-1242.					
	AD	Schulz, R. et al., "Design and realization of an all d-wave dc η -superconducting quantum interference device", <i>American Institute of Physics</i> (2000), Vol. 76, Pages 912-914.					
	AE	Shor, P., "Introduction to Quantum Algorithms" (2000) Pages 1-23.					
	AF	Shor, P., "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", Pages 1-26.					
	AG	Shor, P., "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", <i>Society for Industrial and Applied Mathematics</i> (1997) Vol. 26, Pages 1484-1509.					
	AH	Tafuri, F. et al., "Feasibility of biepitaxial $YBa_2Cu_3O_{7-x}$ -Josephson junctions for fundamental studies and potential circuit implementation", <i>The American Physical Society</i> (2000) Vol. 62, Pages 431-438.					
	AI	Vandersypen, L. et al., "Experimental Realization of an Order-Finding Algorithm with an NMR Quantum Computer", <i>The American Physical Society</i> (2000) Vol. 25, Pages 5452-5455.					
	AJ	Vleeming, B., "The Four-terminal SQUID", Pages 1-100.					
	AK	Volkov, A. et al., "Phase-coherent effects in multiterminal superconductor/normal metal mesoscopic structures" (2000), Pages 1-6.					
<i>JP</i>	AL	Ye, P. et al., "High Magnetic Field Microwave Conductivity of 2D Electrons in an Array of Antidots" (2001), Pages 1-4.					
Examiner <i>JPach</i>	Date Considered	11/04					
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Sheet 1 of 2

LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)	ATTY DOCKET NO. 11090-034-999	APPLICATION NO 09/839,991
	APPLICANT Mohammad Amin	
	FILING DATE April 20, 2001	GROUP 2811

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

AC	Gianni Blatter, Vadim B. Geshkenbein, and Lev B. Ioffe, "Design aspects of superconducting-phase quantum bits", <i>Physical Review B</i> , Vol. 63, 174511, pp. 1-9 (2001).
AD	H.-J. Briegel, W. Dür, J. I. Cirac, and P. Zoller, "Quantum repeaters for communication", ArXiv.org: quant-ph/9803056, pp. 1-8 (1998).
AE	C. Bruder, A. van Otterlo, and G. T. Zimanyi, "Tunnel junctions of unconventional superconductors", <i>Physical Review B</i> , Vol. 51, pp. 12904-12907 (1995).
AF	A. Chrestin, T. Matsuyama, and U. Merkt, "Evidence for a proximity-induced energy gap in Nb/InAs/Nb junctions", <i>Physical Review B</i> , Vol. 55, pp. 8457-8465 (1997).
AG	Aykutlu Dâna, Charles Santori, and Yoshihisa Yamamoto, "Electrostatic force spectroscopy of a single InAs quantum dot", ArXiv.org: cond-mat/0103125, pp.1-5 (2001).
AH	R. Feynman, "Simulating Physics with Computers", <i>International Journal of Theoretical Physics</i> , Vol. 21, pp. 467-488 (1982).
AI	Lov K. Grover, "A fast quantum mechanical algorithm for database search", ArXiv.org: quant-ph/9605043, pp. 1-8 (1996).
AJ	T. F. Havel, S. S. Somaroo, C.-H. Tseng, and D. G. Cory, "Principles and demonstrations of quantum information processing by NMR spectroscopy", ArXiv.org: quant-ph/9812086, pp. 1-42 (1998).
AK	Arne Jacobs, Reiner Klümmel, and Hartmut Pelehn, "Proximity Effect, Andreev Reflections, and Charge Transport in Mesoscopic Superconducting-Semiconducting Heterostructures", ArXiv.org: cond-mat/9810343, pp. 1-8, (1998).
AL	Jonathan A. Jones, Michele Mosca, and Rasmus H. Hansen, "Implementation of a quantum search algorithm on a quantum computer", <i>Nature</i> , Vol. 393, pp. 344-346 (1998).
AC	P. Joyez, P. Lafarge, A. Filipe, D. Esteve, and M. H. Devoret, "Observation of Parity-Induced Suppression of Josephson Tunneling in the Superconducting Single Electron Transistor", <i>Physical Review Letters</i> , Vol. 72, pp. 2458-2461 (1994).

	AD	A.Yu.Kitaev, "Quantum measurements and the Abelian Stabilizer Problem", ArXiv.org: quant-ph/9511026, pp. 1-22 (1995).
	AE	Emanuel Knill, Raymond Laflamme, and Wojciech H. Zurek, "Resilient Quantum Computation", <i>Science</i> , Vol. 279, pp. 342-345 (1998).
	AF	Alexander N. Korotkov and Mikko A. Paalanen, "Charge sensitivity of radio frequency single-electron transistor", <i>Applied Physics Letters</i> , Vol. 74, pp. 4052-4054 (1999).
	AG	S. G. Lachenmann, I. Friedrich, A. Förster, D. Uhlisch, and A. A. Golubov, "Charge transport in superconductor/semiconductor/ normal-conductor step junctions", <i>Physical Review B</i> , Vol. 56, pp. 108-115 (1997).
	AH	J.E. Mooij, T.P. Orlando, L. Levitov, L. Tian, C.H. van der Wal, and S. Lloyd, "Josephson Persistent-Current Qubit", <i>Science</i> , Vol. 285, pp. 1036-1039 (1999).
	AI	Y. Nakamura, Yu. A. Pashkin, and J. S. Tsai, "Coherent control of macroscopic quantum states in a single-Cooper-pair box", <i>Nature</i> , Vol. 398, pp. 786-788 (1999).
	AJ	A.N. Omelyanchouk and Malek Zareyan, "Ballistic Four-Terminal Josephson Junction: Bistable States and Magnetic Flux Transfer", ArXiv.org: cond-mat/9905139, pp. 1-17 (1999).
O I P E MAR 05 2003 PATENT	AK	R. de Bruyn Ouboter and A. N. Omelyanchouk, "Macroscopic quantum interference effects in superconducting multiterminal microstructures", <i>Superlattices and Microstructures</i> , Vol. 25, pp. 1005-1017 (1999).
	AL	V.V. Ryazanov, V.A. Oboznov, A.Yu. Rusanov, A.V. Veretennikov, A.A. Golubov, and J. Aarts, "Coupling of two superconductors through a ferromagnet: evidence for a π -junction", ArXiv.org: cond-mat/0008364, pp. 1-6 (2000).
	AC	R. J. Schoelkopf, P. Wahlgren, A. A. Kozhevnikov, P. Delsing, and D. E. Prober, "The Radio-Frequency Single-Electron Transistor (RF-SET): A Fast and Ultrasensitive Electrometer", <i>Science</i> , Vol. 280, pp. 1238-1242 (1998).
	AD	R. R. Schulz, B. Chesca, B. Goetz, C. W. Schneider, A. Schmehl, H. Bielefeldt, H. Hilgenkamp, J. Mannhart, and C. C. Tsuei, "Design and realization of an all d-wave dc π -superconducting quantum interference device", <i>Applied Physics Letters</i> , Vol. 76, pp. 912-914 (2000).
	AE	P. Shor, "Introduction to Quantum Algorithms" ArXiv.org: quant-ph/0005003, pp. 1-23 (2000).
	AF	P. Shor, "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", ArXiv.org: quant-ph/9508027, pp. 1-26 (1995).
	AG	P. Shor, "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", <i>SIAM Journal of Scientific and Statistical Computing</i> , Vol. 26, pp. 1484-1509 (1997).
	AH	F. Tafuri, F. Carillo, F. Lombardi, F. Miletto Granozio, F. Ricci, U. Scotti di Uccio, A. Barone, G. Testa, E. Sarnelli, and J. R. Kirtley, "Feasibility of bi epitaxial $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Josephson junctions for fundamental studies and potential circuit implementation", <i>Physical Review B</i> , Vol. 62, pp. 431-438 (2000).
	AI	L. M. K. Vandersypen, M. Steffen, G. Breyta, C. S. Yannoni, R. Cleve, and I. L. Chuang, "Experimental Realization of an Order-Finding Algorithm with an NMR Quantum Computer", <i>Physical Review Letters</i> , Vol. 25, pp. 5452-5455 (2000).
	AJ	B. Vleeming, "The Four-terminal SQUID", PhD. Dissertation Leiden University, pp. 1-100 (1998).
	AK	A.F. Volkov, and R. Sevior, "Phase coherent effects in multiterminal superconductor/ normal metal mesoscopic structures", ArXiv.org: cond-mat/0003370, pp. 1-6 (2000).
	AL	P. D. Ye, L. W. Engel, D. C. Tsui, J. A. Simmons, J. R. Wendt, G. A. Vawter, and J. L. Reno, "High Magnetic Field Microwave Conductivity of 2D Electrons in an Array of Antidots", ArXiv.org: cond-mat/0103127, pp. 1-4 (2001)

EXAMINER	DATE CONSIDERED
	11/04

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PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known		
				Application Number		09/839,991
				Filing Date		April 20, 2001
				First Named Inventor		Mohammad Amin
				Art Unit		2811
				Examiner Name	Not Yet Assigned	
Sheet	1	of	2	Attorney Docket Number		
U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
		Number - Kind Code² (if known)				
	BA	US-6,495,854 B1	12/17/02	D.M. Newns, and C.C. Tsuei		
	BB	US-6,459,097 B1	10/01/02	A. M. Zagorskin		
	BC	US-6,504,172 B2	01/07/03	A. M. Zagorskin et al.		
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FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T³
		Country Code⁴ - Number⁵ - Kind Code⁶ (if known)				
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)						
	BD	R. de Bruyn Ouboter, A.N. Omelyanchouk, and E.D. Vol, "Multi-terminal SQUID controlled by the transport current," <i>Physica B</i> , Vol. 205, pp. 153–162 (1995).				
	BE	R. de Bruyn Ouboter and A.N. Omelyanchouk, "Four-terminal SQUID: Magnetic Flux Switching in Bistable State and Noise," <i>Physica B</i> , Vol. 254, pp. 134–140 (1998)				
	BF	R. de Bruyn Ouboter, A.N. Omelyanchouk, and E.D. Vol, "Dynamical properties of the Josephson multiterminals in an applied magnetic field," <i>Physica B</i> , Vol. 239, pp. 203–215 (1997).				
	BG	R.de Bruyn Ouboter, A.N. Omelyanchouk, and E.D. Vol, "Magnetic flux locking in two weakly coupled superconducting rings," ArXiv.org: cond-mat/9805174, pp. 1–10 (1998), website last accessed on January 16, 2002.				
	BH	J.P. Heida, B.J. van Wees, T.M. Klapwijk, and G. Borghs, "Nonlocal supercurrent in mesoscopic Josephson junctions," <i>Physical Review B</i> , Vol. 57, pp. R5618–R5621 (1998).				

BI	J. P. Heida, B. J. van Wees, T. M. Klapwijk, and G. Borghs, "Critical currents in ballistic two-dimensional InAs-based superconducting weak links," <i>Physical Review B</i> , Vol. 60, pp. 13135–13138 (1999).		
BJ	Lev B. Ioffe, Vadim B. Geshkenbein, Mikhail V. Feigel'man, Alban L. Fauchère, and Gianni Blatter, "Environmentally decoupled sds-wave Josephson junctions for quantum computing," <i>Nature</i> , Vol. 398, pp. 679–681 (1999)		
BK	Urs Ledermann, Alban L. Fauchère, and Gianni Blatter, "Nonlocality in mesoscopic Josephson junctions with strip geometry," <i>Physical Review B</i> , Vol. 59, pp. R9027–R9030 (1999).		
BL	K.K. Likharev, "Superconducting weak links," <i>Reviews of Modern Physics</i> , Vol. 51, pp. 101, 102, 146–147 (1979).		
BM	Y. Makhlin, G. Schön, and A. Shnirman, "Quantum-State Engineering with Josephson-Junction Devices," <i>Reviews of Modern Physics</i> , Vol. 73, pp. 357–400 (2001).		
BN	P. Samuelsson, Å. Ingerman, V.S. Shumeiko, and G. Wendin, "Nonequilibrium Josephson current in ballistic multiterminal SNS-junctions," ArXiv.org: cond-mat/0005141, pp. 1–12 (2000).		
BO	Qing-feng Sun, Jian Wang, and Tsung-han Lin, "Control of the supercurrent in a mesoscopic four-terminal Josephson junction," <i>Physical Review B</i> , Vol. 62, pp. 648–660 (2000).		
BP	D.A. Wollman, D.J. Van Harlingen, J. Giapintzakis, and D.M. Ginsberg, "Evidence for $d_{x^2-y^2}$ Pairing from the Magnetic Field Modulation of $YBa_2Cu_3O_7$ -Pb Josephson Junctions," <i>Physical Review Letters</i> , Vol. 74, pp. 797–800 (1995).		
BQ	Malek Zareyan and A.N.Omelyanchouk, "Coherent Current States In Mesoscopic Four-Terminal Josephson Junction," ArXiv.org: cond-mat/9811113, pp. 1–17 (1998).		
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¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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